

Chapter 1

Kathmandu Upatyaka Khanepani Limited(KUKL)

1. KUKL

Kathmandu Upatyaka Khanepani Limited (KUKL) is a public company registered under the Nepal Government's Company Act 2063 and operates under the Public Private Partnership (PPP) modality. The company has the objective to undertake and manage the water supply and sanitation system of the Kathmandu Valley previously operated by NWSC and to provide a quantitative, qualitative and reliable service to its customers at an affordable price. KUKL is responsible for the operation and management of water and wastewater services in the Valley. A thirty-year license was granted to KUKL on 1 Falgun 2064 (13 February 2008) by the Kathmandu Valley Water Supply Management Board (KVWSMB) for operating the water supply and sanitation services in the service areas within Kathmandu Valley. KUKL is responsible for the maintenance of all assets received on lease from KVWSMB. The company will also take over the responsibility for infrastructure built by the Melamchi Water Supply Project.

The company will issue preference share to KVWSMB against the assets transferred to it and not more than 10% dividend to shareholders if company is able to make profit. The KUKL will pay an annual license fee to the Board.

The share holders of the company owning with respective initial common shares are

- *GON (30%),*
- *Municipalities in the valley (50%) [Kathmandu Metropolis- 30%, Lalitpur Sub-Metropolis- 10%, Bhaktapur Kirtipur and Madhyepur Thimi – 10%],*
- *Private sector organization (15%) [FNCCI- 3%, Lalitpur Chamber of Commerce - 1.5%, Nepal Chamber of Commerce- 9%, Bhaktapur Chamber of Commerce -1.5%], and*
- *employee trust to be paid by the government (5%).*

Present Shareholders Structure of KUKL

S.N.	SHAREHOLDER	SHARE AMOUNT(NRs)	SHARE (%)
1	Government of Nepal, Ministry of Water Supply	24 Crore	24
2	Municipalities of Kathmandu Valley	40 Crore	40
	Kathmandu Metropolitan city	24 Crore	24
	Lalitpur Metropolitan city	8 Crore	8
	Other 16 Municipalities of Kathmandu Valley	8 Crore	8
3	Private Sector Organizations	12 Crore	12
	Nepal Chamber of Commerce	7.2 Crore	7.2
	Federation of Nepal Chamber of Commerce & Industry	2.4 Crore	2.4
	Lalitpur Chamber of Commerce	1.2 Crore	1.2
	Bhaktapur Chamber of Commerce	1.2 Crore	1.2
4	Employees Trust	4 Crore	4
5	Share to be issued to Public	15 Crore	15
6	Share to be issued to Employees	5 Crore	5
	Total	1 Arab	100

Note: KUKL ANnual Report 2077

KUKL is managed and supervised by a nine Board of Directors.

- *Six are nominated by shareholders (two from GoN, two from Kathmandu Metropolitan, one each from Lalitpur Sub-Metropolitan and private sector) and three independently appointed.*
- *Two of the three independent Boards of directors are selected on competitive basis.*
- *one is nominated by ADB until its loan is paid back.*

KUKL Board has two implementing wings.

- *PID, established for project implementation*
- *Department for operation of water supply and sewerage system in the valley.*

2. Historical Background

While going back to history, the populations of Kathmandu Valley were not high, so, government was not too much concern about providing drinking water supply to the people in Kathmandu Valley. During that period, people used to take water from the available natural sources near their homes. However, because of population growth due to both natural growth and in-migration from other districts, the existing available resources were not enough to feed the people and thus, government realized to provide drinking water for the people in the Kathmandu valley and thus established a systematic development of water supply system with the name PANI ADDA (PANI GOSWARA) unit in 2029 BS. The organization has been restructured from time to time in order to provide the better service delivery to the customer. Following were the statutory development records of this organization.

- *Pani Adda / Pani Goswara Until 2029 Bs (May 1973 Ad)*
- *Water Supply & Sewerage Board 2029 Bs (July 1973 Ad),(Under The Development Board Act, 1957)*
- *Water Supply & Sewerage Corporation, 2041 Bs (July 1985 Ad),(Under The Corporation Act, 1965)*
- *Nepal Water Supply Corporation , 2046 Bs (February 1990 Ad),(Under Nepal Water Supply Corporation Act, 1990)*

In Ninth and Tenth Five Year Plan (1997), HMG set the policy of involvement of local governments and private sectors in development of water supply and sanitation, and invited expression of interest in 1999 for lease contract of Kathmandu Valley water supply services to private sector.

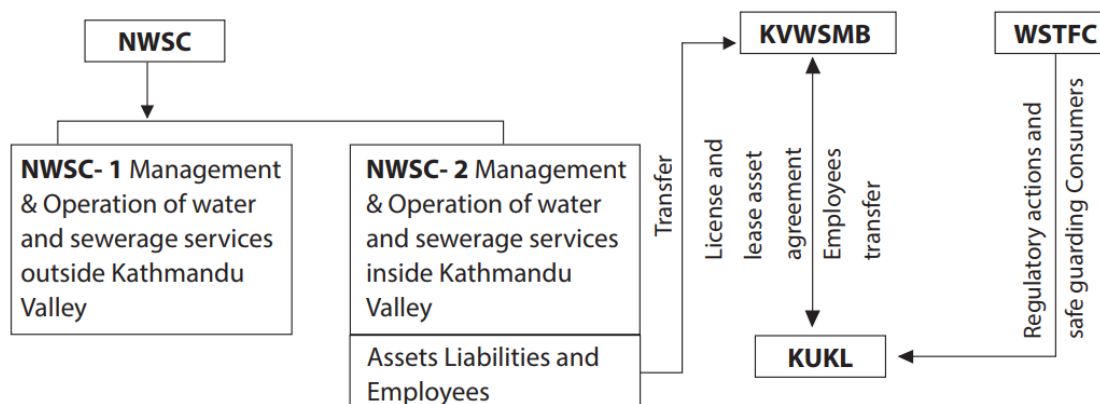
The government approved concept of formation of Kathmandu Valley Water supply Authority in 2000, and set strategy policy for operation of water supply services by private sector under Public Private Partnership (PPP) modality.

As per the policy of involvement of local governments and private sectors in development of water supply and sewerage system in Kathmandu valley (KV), The Government of Nepal (GoN) reformed

public sector organization Nepal Water Supply Corporation (NWSC) separating its function of policy formulation & planning, operations and regulation in 2006.

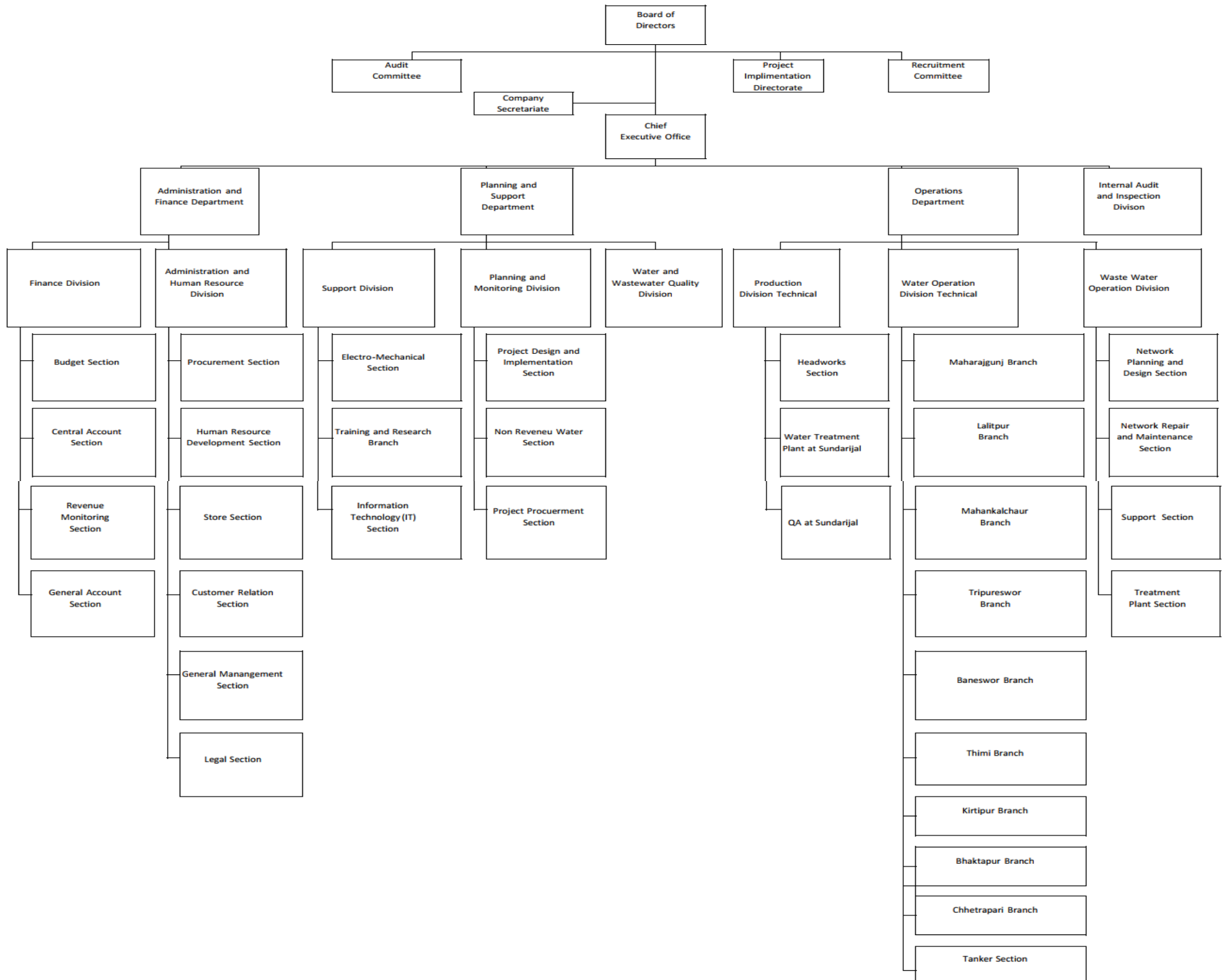
Accordingly, GoN created three institutions;

- *Kathmandu Valley Water Supply Management Board (KVWSMB) established under Water Supply Management Board Act, 2006 as policy maker as well as asset owner,*
- *Water Supply Tariff Fixation Commission (WSTFC) enacted by Water Supply Tariff Fixation Commission Act, 2006 as a regulator and*
- *Kathmandu Upatyaka Khanepani Limited(KUKL)*



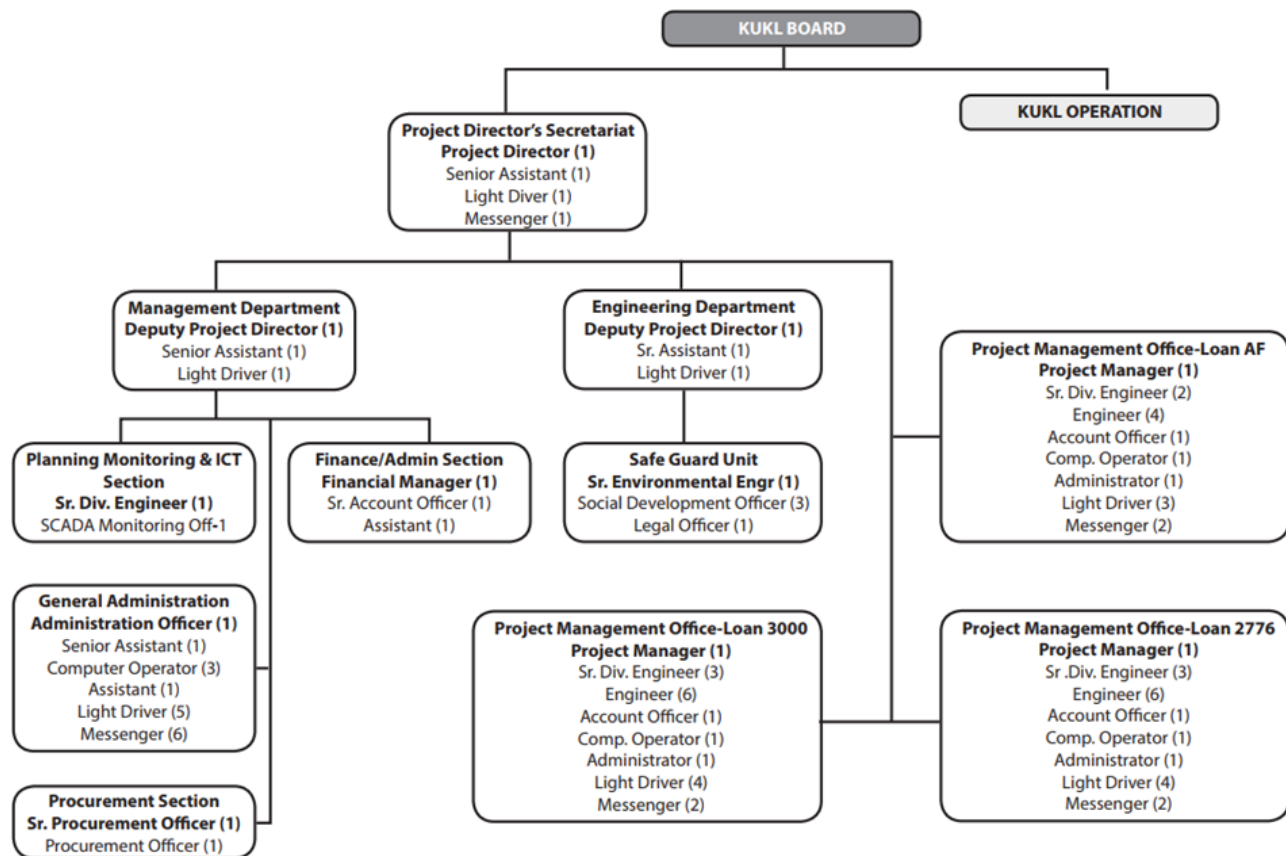
The government formed Kathmandu Upatyaka Khanepani Limited (KUKL) under Company Act, 2006 as water utility operator under operating license issued by Kathmandu Valley Water Supply Management Board (KVWSMB) and asset lease agreement between them.

3. Organisational structure



4. Project Implementation Directorate (PID)

Project Implementation Directorate (PID) is established under KUKL basically to undertake ADB assisted WASH projects related with Kathmandu valley such as Kathmandu Valley Water Supply and Sanitation Subproject (Subproject -2) of Melamchi Water supply Project. It is a temporary entity and asset creator to KVWSMB. Capital investment programs in water supply and sewerages in KV are being implemented by PID.



Main objectives of PID are

- to plan and implement infrastructure development and augmentation regarding water conveyance, operation and management system of Kathmandu valley for equitable distribution of water received from Melamchi Water Supply Project and ensure availability of potable water to Valley denizens
- to plan and implement infrastructure development regarding wastewater management system of Kathmandu valley for overall improvement of environment of Kathmandu valley including improvement of water quality of rivers

Although it is a part of KUKL, it does not have any formal relationship with KUKL except that it is shown as a part of KUKL in organizational structure and two technical managers (distribution and planning) from KUKL are represented in the technical committee of PID. PID is guided and supervised by a project steering committee chaired by secretary of MoUD.

PID has a full fledge organization structure separate from KUKL structure and fully manned by competent staff mostly on deputation from the government and KUKL. Decisions are taken at the project steering committee level and implemented by the Directorate. KUKL Board and top management of KUKL are not in the loop on decision making process.

Activities of Project Implementation Directorate (PID):

Project Implementation Directorate (PID) of KUKL is a project office for the management of ADB funded projects. The Bulk Distribution System (BDS), Distribution Network Improvement (DNI) of the water supply infrastructure as well as works related to wastewater service infrastructure construction works is being implemented by Project Implementation Directorate (PID) of KUKL. Government of Nepal requested to the Asian Development Bank to finance the wastewater management project of Kathmandu Valley. The BDS and DNI works are in line with ADB's Nepal country partnership strategy. It calls for economically viable, environmentally sustainable, and socially acceptable solutions for the metropolitan Kathmandu sewage management.

There are two major components under PID which are explained in detail in following paragraphs.

Water Supply Infrastructure Component

The objective of this component is mainly towards improvement of water supply, storage and distribution system including improvement of efficiency, service delivery, institutional development and governance in the water sector in Kathmandu Valley. With the completion of Melamchi tunnel, Kathmandu Valley will receive an additional 170 million litres per day (MLD) in first phase, while the current average availability from existing sources is about 120 MLD. For the efficient distribution of this water, distribution network improvement works, bulk distribution system construction along with 10 service reservoir is being constructed by PID.

Major Works Under Water Supply Infrastructure Component

S.N.	Description	Activities
1	Bulk Distribution System Network (BDS)	Includes construction of total 77.58 kilometers of D.I. Pipeline aiming to convey water from Sundarilal WTP to 10 Service reservoirs located at different places in Kathmandu Valley.
2	Service Reservoirs	10 Service Reservoirs with total capacity of 74500 cubic meters is being constructed at 9 locations of Kathmandu Valley to facilitate the supply of water to distribution network.
3	Distribution Network Improvement (DNI)	About 1132 Kilometers of Distribution network will be constructed based on district metering area (DMA) to facilitate the water distribution and reduce the NRW.
4	Consumer connections	About 110000 consumer connection will be constructed for supplying water to the households.
5	Automation System (SCADA)	Automation System (SCADA) will be installed to remotely control the major valves in service reservoirs and distribution network.

Wastewater Infrastructure Component

The major objective of this component is

- to improve the wastewater management capacity of Kathmandu Valley,
- to maximize the efficiency of defective ness of existing waste water sector infrastructure and service provision, through restoration, establishment and extension of wastewater services in KUKL service areas,
- to strengthen sewerage infrastructure to abolish ingression of foul water into water supply line and help to eradicate pollution of drinking water and to improve water quality in urban rivers and tributaries and their ecosystem.

Major Works Under Wastewater Infrastructure Component

SN	Description	Activities
1	Wastewater Treatment Plants	Construction of Wastewater Treatment Plants at Guheswori, Kodku, Sallaghari and Dhobighat with total Treatment capacity of about 138 million litres per day
2	Interceptors along the Banks of Rivers	Interceptors along the Manohara, Hanumante and Khasyang-Khusung River/ Stream of length about 45 kilometers aiming to intercept the wastewater disposal into the river/stream
3	Sewer Network Rehabilitation and Construction	Rehabilitation and construction of sewer networks in Kathmandu Valley is being implemented under this part
4	Decentralized Wastewater Treatment Plants (DEWATS)	Presently two DEWAT systems are proposed to be constructed at Gokarna of Kathmandu and Hanumanghat of Bhaktapur

5. Kathmandu Valley Water Supply Management Board (KVWSMB)

Katmandu Valley Water Supply Management Board (KVWSMB) was established under Water Supply Management Board Act, 2006. KVWSMB is a public body responsible for policies and ownership of water service infrastructures. KVWSMB had taken over the ownership of assets of water supply facilities from NWSC inside Kathmandu valley.

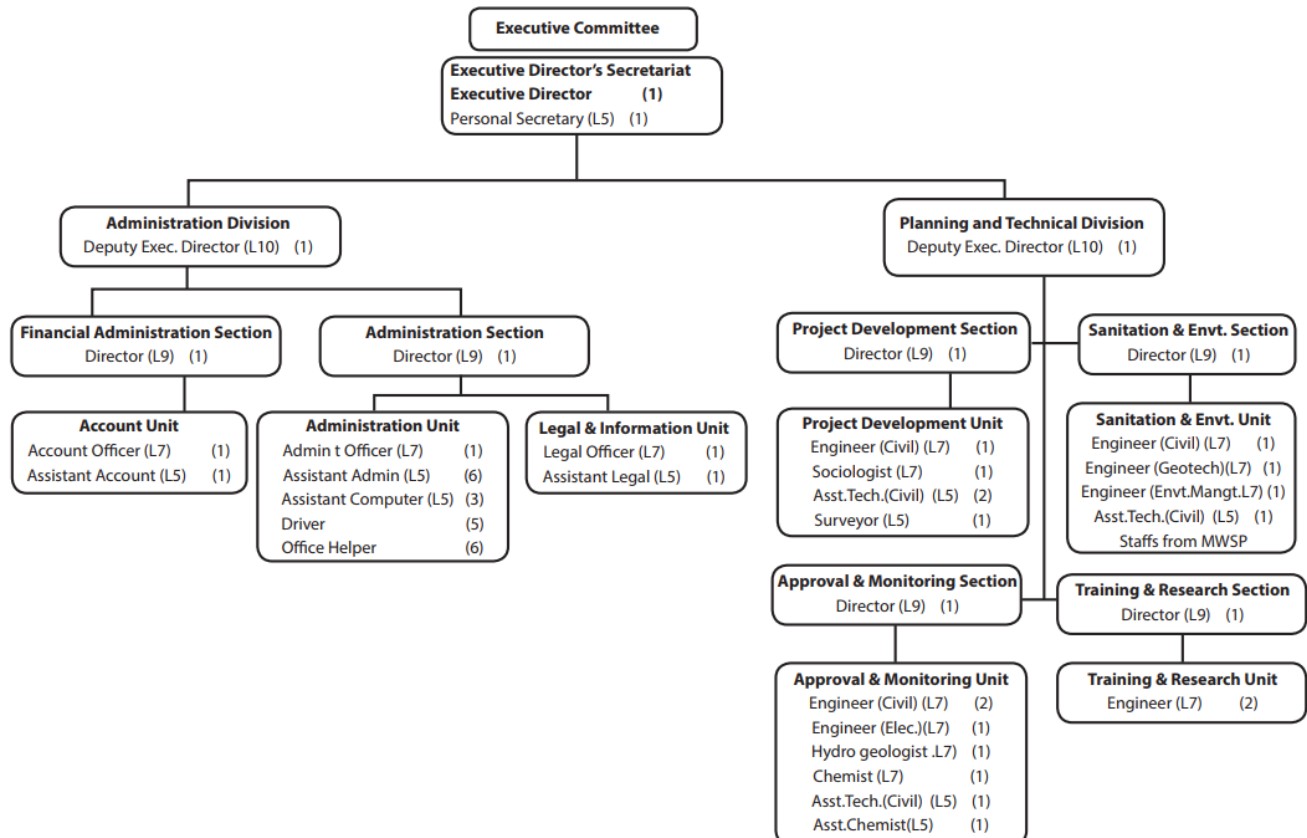
KVWSMB is represented by 11 members,

- GoN
- local Government (Kathmandu Metropolitan, Lalitpur Sub-Metropolitan, Bhaktapur Municipality, Madhyepur Thimi, Municipality, Kirtipur Municipality),
- Federation of Nepal Chamber of Commerce and Industries (FNCCI),
- one representative from three District Development Committee (DDC) within valley,
- representative of Consumer Association operating in the valley,
- representative nominated of Water/Sewerage service-related NGOs and
- expert nominated from WASH sector.

Assets of KVWSMB transferred from NWSC have given to KUKL on lease accordance with lease agreement between them. KVWSMB has issued license for the operation of water supply and sewerage services to KUKL and receive license fee, lease payments, government transfers and donor funding.

KVWSMB is operating the services on water supply through service provider by providing a license to the service provider. The mandate of KVWSMB is stated clearly in WSMB Act, 2006 and KVWSMB cannot function as an operator.

Organisational Structure



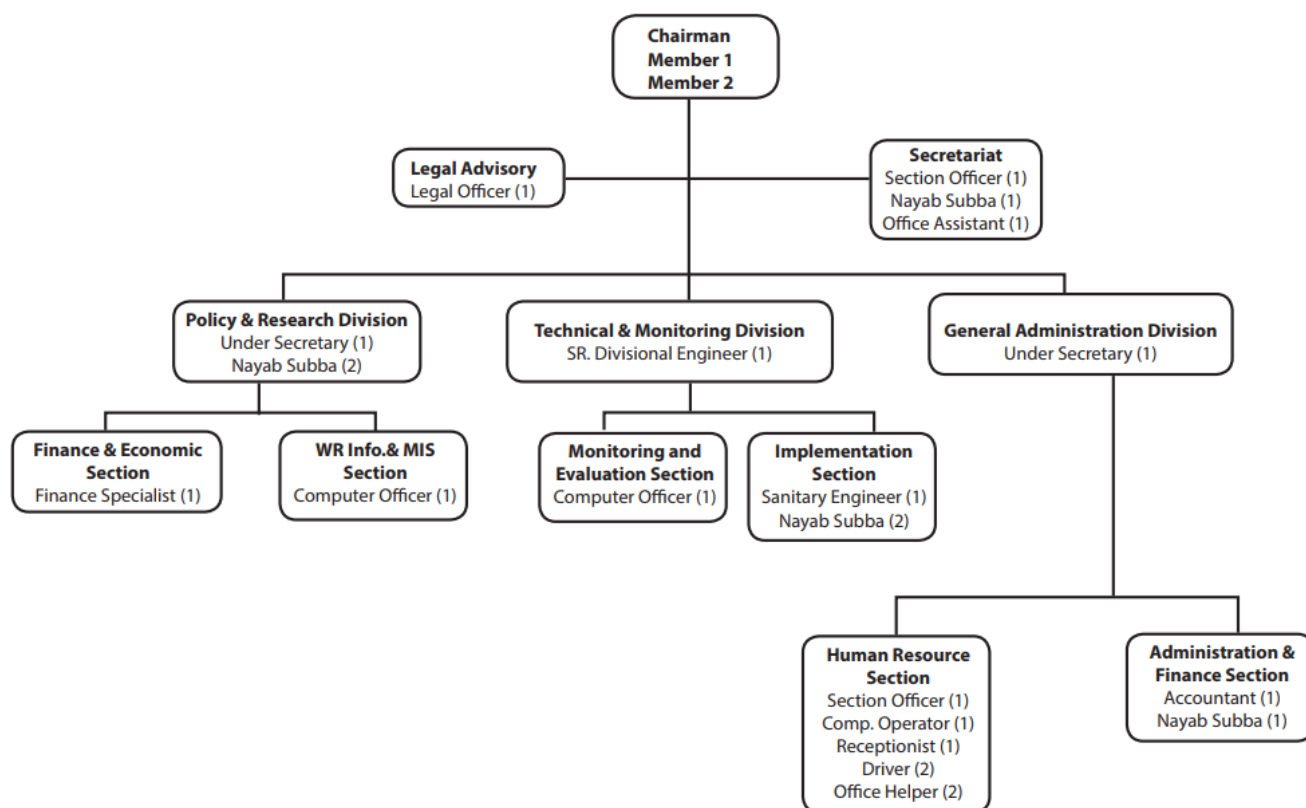
6. Water Supply Tariff Fixation Commission (WSTFC):

Water Supply Tariff Fixation Commission (WSTFC) was established as per Water Supply Tariff Fixation Commission Act (2006). WSTFC was, hereby, formed for the protection of the interests of consumers by providing qualitative and reliable water supply and sanitation service to the consumers at a reasonable price, by fixing the tariff of water supply and sanitation service.

Organizational Structure:

The Commission members, including the Chief Commissioner are appointed on competitive basis. The main function of the Commission is to determine water tariff based on commercial principles and set scientific criteria. It is an independent regulator of tariffs for water supply and wastewater services

throughout Nepal. WSTFC is looking after water tariff of KUKL, NWSC, and Water Supply Management Boards formed by the Act.



7. Melamchi Water Supply Development Board (MWSDB)

Melamchi Water Supply Development Board (MWSDB) has been established in November 9, 1998 (2055/7/23 BS) as an implementing agency of Melamchi Water Supply Project (MWSP). Constitutions of the MWSDB comprised the following designations:

- *Chairman- The Secretary, Ministry of Urban Development*
- *Members- Representative (Gazetted First Class Officer), Ministry of Finance*

Representative (Gazetted First Class Officer), Ministry of Water Resource (This member is replaced by the Chairman/representative from Hyolmo Sindhu Melamchi SUP implemen-tation Committee as amended by the Government of Nepal on 27 April 2010)

- Mayor, Kathmandu Metropolitan City
- Member Secretary – Executive Director, Melamchi Water Supply Development

The functions, duties and rights of the MWSMB are as follow:

- i. To execute Melamchi Water Supply Project to make available drinking water for the public, domestic industry, environmental or other use
- ii. To decide policy relating to the project
- iii. To approve the detail estimate relating to the project
- iv. To call national and international level competitive bid to execute the project and to approve it in a prescribed manner
- v. To inspect the functions of the project whether they are performed appropriate or not and
- vi. To give directions to the concerned person for correction. If it deemed necessary during inspection
- vii. To appoint consultant and employees as required to the Board and
- viii. To approve annual program and budget of the Board
- ix. To submit annual report and audit report of the Board to the Government of Nepal
- x. To carry out other functions as prescribed by the government of Nepal

Ministry of Urban Development (MoUD) is the executing agency for the Project and an autonomous Melamchi Water Supply Development Board, formulated for Project implementation, is the implementing agency. The Melamchi Water Supply Project (MWSP) under MWSDB is considered to be the most viable long-term alternative to ease the chronic water shortage situation within the Kathmandu valley. The Project is designed to divert about 170 MLD of fresh water to Kathmandu valley from the Melamchi river in Sindhupalchowk district.

Augmenting this supply by adding about a further 170 MLD each from the Yangri and Larke rivers, which lie in the upstream proximity of Melamchi are the major donor of the project, Asian Development Bank (ADB) approved a Loan 1820-NEP (SF) on 21st December, 2000 and it was effective from 28th November, 2001. After six years of project implementation, Government of Nepal and the project's funding partners, felt necessity to change the scopes of project implementation arrangement by splitting the MWSP into the following two distinct sub-projects in 2007;

- (i) the Melamchi river Water Diversion Subproject (Sub-Project -1) covering all project activities in Melamchi valley including constructions of Water Diversion Tunnel (WDT) and Water Treatment Plant (WTP) at Sundarjal
- (ii) Kathmandu Valley Water Supply and Sanitation Subproject (Subproject -2) comprising water distribution activities in Kathmandu valley. EMP implementation requirements as per EIA and EMP of MWSP, 2000 and 2001 have been covered both of these sub-projects.

8. Flood havoc in Melamchi ,June 14 and 15,2021

- Tuesday's destructive Melamchi flooding, attributed to a sudden bursting of the river blocked by landslides triggered by incessant rainfall, has caused significant damage to the Melamchi Water Supply Project. The flood, which is believed to have occurred due to landslides upstream, also affected the Melamchi project site.
- The flood has not only impacted the first phase of the Melamchi project, which aims to supply 170 million litres of drinking water daily to the Kathmandu Valley, but also the second phase of the

project that plans to bring in an additional 170 million litres per day each from the Yangri and Larke rivers.

- The flood brought mudflow that has buried the headworks site at Ambathan area. Most of the headworks' area looks buried in debris. The right section of the headworks looks intact whereas the left section looks mostly buried in mud.
- Besides the damage to the headworks structure, other temporary structures like camps for construction workers and concrete and Bailey bridges have been swept by the floods.
- The main tunnel, which ferries water from the Melamchi river to the Kathmandu Valley, that lies nearly 800 metres from the headworks area has suffered damage. Before the 26.3-km main tunnel, there is a 298-metre adit tunnel—the gateway to the main tunnel. The muddy water has blocked the entrance of the adit tunnel. The floodwaters, however, have not caused any damage to the main tunnel, whose gates were closed .
- The flood also caused severe damage in the Project's vital infrastructures in Ambathang, the main gateway of the Melamchi Water Supply Project. The devastating flood in the Melamchi River on June 15 had damaged the head works of the project, obstructing the water supply to the valley.
- The flood has damaged a concrete bridge at the Ambathan adit and two other Bailey bridges, which were temporarily erected to support construction activities.. Besides these structures, construction materials and other equipment stored at the camp have also been washed away by the floods. The electricity supply remains cut off.
- Access roads built along the Indrawati River for the phase 2 project have also been damaged and the construction of three bridges along the Dhap-Thulo Bhotang section have been affected. Construction materials and equipment meant for the construction of the bridges have been washed away..The major obstacle in calculating the impact of the flood damage is the damaged roads that have made it difficult to reach the project site.
- The monsoon mayhem left behind a trail of devastation in Melamchi Municipality and nearby areas of Sindhupalchok district. As floodwaters started gushing into settlements, hundreds of families were displaced in the Melamchi Bazar area, where the mud brought by the floodwaters buried homes as high as first the first floor. Sindhupalchok district authorities, on Thursday afternoon, confirmed that three persons, including two Chinese and one Indian died, whereas 17 others, including two Indians and one Chinese, are still missing.
- The Melamchi Drinking Development Committee had halted the water supply temporarily for two months starting from mid-June for carrying out repair work of the tunnel. Following the damages caused by the flood just on the next day of the targeted work, the project had been seeking help from government authorities including Nepal Army to restart water distribution only by mid-February 2022.

9. Public Private Partnership in Water sector

Public Private Partnerships (PPPs) in the water supply sector began to emerge in the early 1990s in most developing countries of the world. Initiated in most countries by international private operators, these arrangements were typically large-scale PPP projects which required the private operators to finance, develop, operate, and manage the water supply system for a large population base.

However large-scale projects had suffered failure to complete in time and the factors included difficulties in achieving financial closure by the private operators, sociopolitical barriers, tariff-setting issues, and high financial risk. The failure of several large-scale projects during this phase resulted in many international private operators withdrawing from such projects in the developing countries. This gave rise to the perception that the number of PPP contracts being pursued in the water supply sector was declining. A lot has been happening in Public-Private Partnerships (PPPs) in the water supply and sanitation sector over the last few years, contrary to some misperceptions. Today's market is radically different from the 1990s. Developing countries, facing the challenges of sustainability and financial viability due to the inescapable realities of poor water supply and sanitation services and constrained budgets, are looking at PPPs as an option worth considering to help performance or to develop new sources

water PPPs are being used increasingly by public utilities in a more focused way, to manage a specific subset of activities or challenges, such as increasing energy efficiency and water availability through non-revenue water management, or development of a new water source. The focus is on performance-based contracting, with payments against outputs.

Different PPPs Model in water sector are

Build-Operate-Transfer (BOT) and Design-Build-Operate (DBO),

- Desalination and wastewater treatment plants (especially in the Middle East, China, Mexico and Brazil)
- This is an area where private financing can be raised, often with the help of risk mitigation tools such as guarantees. Also, they bring the benefits of expertise and technology and sustainable operations. They are often new build or substantially new build in nature and so also do not carry the risks of existing assets;

Performance-Based Contracts (PBCs)

- A substantial element of these contracts is typically knowledge transfer and capacity building of the utility workforce;
- Activities involves reduction of non-revenue water, leakage management to increasing connectivity to increase efficiency and expanding connectivity (for instance Ho Chi Minh City in Vietnam)
- These projects focus on results, with payments conditional on the achievement of outputs. Often these projects do not involve the private sector taking over the management of the overall utility, so the public sector is still running the day to day operations but benefiting from private sector expertise

in key areas. A substantial element of these contracts is typically knowledge transfer and capacity building of the utility workforce;

Performance/ output-based management contracts

- Implemented in the Middle East and North Africa (Algeria, Saudi Arabia, Oman), Latin America (Tegucigalpa in Honduras, Colon in Panama) and Africa (Congo DRC), some with regional private operators (such as SDE in Senegal which won the Congo DRC contract)
- Involve the management of the utility being outsourced to a private operator, whilst others bring systems and expertise to work alongside existing management;

Small scale private operators

- successful in implementation of donor-sponsored water or sanitation PPP projects for rural and peri-urban areas
- Became more and more commonplace in developing countries,

Large national private water operators:

- Several emerging countries have seen the consolidation of Philippines (Manila Water, Maynilad), Brazil, Malaysia and Russia but also Africa (e.g., SDE in Senegal which became independent of Saur noted above).

10. Factors affecting the failure of Water PPPs

- Inconsistent and inadequate local stakeholder support. Stakeholder support for water PPPs was uncertain during the initial period of water PPPs
- Successive changes in the political establishment resulting in inconsistent support from the state government causing the controversies and issues in contract and procurement between the stakeholders and private operators.
- Weak financial capacity and mechanisms to address tariff concerns. Public water utilities can't change bulk water tariff due to low revenue, owing to tariffs levied and collected from end users consumers.
- Civil society and employee opposition towards involvement of the private sector in the distribution services.
- Lack of prior experience limited understanding, awareness, and technical capacity to Undertake PPPs in the water supply sector. Inadequate baseline information, lack of clarity on risk sharing, and poorly managed procurement processes contributed to difficulties in getting these PPPs off the ground
- Higher incidence of failures in large cities as stakeholder opposition often tended to be amplified in large cities, and project champions constrained by multiple political pressures. Conversely, in

smaller cities, where media pressure and stakeholder opposition are comparatively lower, and project champions more empowered, PPP arrangements may enjoy a greater chance of success.

11. Factors affecting the Success of Water PPPs

- Availability of Public Funding brings success in water PPPs
- Improved mechanisms to address tariff concerns AND Revenue risk of the private operator.
- Increased attention to stakeholder support:
- Strong project ownership and expertise played an active role in project conceptualization, feasibility studies, stakeholder consultations and procurement.
- Growth in domestic private sector interest:

12. Emerging Issues that have an Impact on Water Sector PPPs

Emerging issues that could hamper progress of water PPPs in the future.

- PPP momentum in the water sector has been local, project-level initiative. and are not mainstreamed in the sectoral strategy
- Stakeholder support for water PPPs tends to be tactical and opportunistic, often aimed at trying to maximize a temporary public funding opportunity. Moreover, the dependence on public funding and inadequate movement on tariff reform raise questions on the long-term sustainability of projects.
- Project preparation process tends to be rushed, due to short timeframes for submission of proposals for grant programs and the short tenures of decision makers. The result is weak information baselines and hurried procurement, poor quality proposals, and high-risk perception by operators.
- The commitment to PPP is often restricted to the higher levels of the decision-making body and not matched by technical capacity at the operating level. The implementing agencies usually lack the capacity to monitor and oversee contracts and service standards. The city level engineers and others have little or no exposure to concepts of PPPs
- weak cities will find the cost of PPPs in water sector high when the public funding is insufficient and so lacks the capacity to facilitate, implement and monitor PPPs.

13. Way Forward and Possible Interventions to achieve successful water PPPs

- Articulation of Water PPP Strategy to widen the current project-specific approach into a sector trend and to help stakeholders and utilities to strengthen their position with respect to PPPs in the water sector.
- Develop sector regulation as a long-term measure to set service standards, make cities accountable for service delivery and hence address consumers' needs. and so, create an enabling environment for more effective private participation in the water sector.

- Project preparation for water PPPs is expensive and cities often lack the flexibility to mobilize internal resources for this activity. National-level project preparation assistance can help cities devote the required time and resources
- Initiating Water Tariff Reforms based on the analytical information might help stakeholders to develop strategic tariffs suited to their local context